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ABSTRACT

A meta-analysis was conducted of 137 studies investigating the effects of father absence due to employment, military service, death, divorce, separation, or desertion on children's cognitive performance as assessed by scores on standardized intelligence, scholastic aptitude, and academic achievement tests and school grades. Aggregation of the study findings yielded an overall average effect size of -.26 reflecting a .26 standard deviation superiority of the father-present subjects over the father-absent subjects. Study outcomes were found to differ significantly as a function of age at onset of absence, age of study subjects, and study methodological quality. Only 14% of the total variance in the reported father-absence effects was accounted for by the composite set of study characteristics suggesting that existing father-absence research provides little relevant data regarding potentially important variables. In light of these findings, suggestions are made for future father-absence research. (Author)

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Meta-Analysis of Studies Investigating the Effects of Father Absence on Children's Cognitive Performance

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Abstract

A meta-analysis was conducted of 137 studies investigating the effects of father absence due to employment, military service, death, divorce, separation, or desertion on children's cognitive performance as assessed by scores on standardized intelligence, scholastic aptitude, and academic achievement tests and school grades. Aggregation of the study findings yielded an overall average effect size of -.26 reflecting a .26 standard deviation superiority of the father-present subjects over the father-absent subjects. Study outcomes were found to differ significantly as a function of age at onset of absence, age of study subjects, and study methodological quality. Only 14% of the total variance in the reported father-absence effects was accounted for by the composite set of study characteristics suggesting that existing father-absence research provides little relevant data regarding potentially important variables. In light of these findings, suggestions are made for future father-absence research.

Meta-Analysis of Studies Investigating the Effects of Father Absence on Children's Cognitive Performance

Since 1960 the proportion of children living with two parents has fallen dramatically, while the proportion living with only one parent has more than doubled (Hofferth, 1985). Demographers predict that at least one third and perhaps nearly one-half of all children born during the current decade will spend some portion of their lives in a one-parent household (Bumpass, 1984; Spanier & Glick, 1981; Watternberg & Reinhardt, 1979). Mother-present, father-absent families make up the majority of one-parent families. In Statistical Abstracts 1985, the Bureau of Census reported that 15.4% of the total family types (i.e., two-parent, father-absent, mother-absent) are mother-only families. Thus, father absence in America is an issue of national scope; over 14 million children in this country live in father-absent homes (Bureau of Census, 1984).

These changing family patterns have resulted in an increasing focus on the effects of father absence on children's cognitive performance. Although the research (Lamb, 1975, 1976; Lamb & Bronson, 1980; Lynn, 1974) has stressed the importance of fathering to children in two-parent families, the effects of father absence are still contested. There is a wide discrepancy among research findings as to the effects of father absence due to divorce, separation, desertion, and death on children's cognitive performance. There are data indicating that father absence is detrimental, that it has no effect, and that it may even stimulate

the child's cognitive performance. Traditionally, studies investigating the effects of father absence have focused on four measures of cognitive performance: standardized intelligence tests, standardized tests of scholastic aptitude, standardized achievement tests, and school grades.

Contradictory Research

Many studies addressing the issue of the effects of father absence on children's cognitive performance have concluded that father absence has negative consequences. For example, Broman, Nichols, and Kennedy (1975) studied 26,104 white and black four-year-old children from father-absent and father-present homes and found significant differences ($\rho < .05$) between Stanford-Binet Intelligence Scale scores for the two family groups. In a study of third through twelfth grade middle-class students, Boyd (1984) reported that father-absent students scored significantly lower ($\rho < .05$) than father-present students on mathematics and reading subtests of the California Achievement Test. In another study of the effects of father absence on school-age children, Blanchard and Biller (1971) compared the grade point averages of third-grade boys and found that the academic performance of the father-absent group was significantly lower ($\rho < .01$) than that of the father-present group.

However, other researchers investigating the effects of father absence have concluded that father absence does not significantly affect children's cognitive performance. For example, Cortes and

Fleming (1968) reported no significant differences in the Kuhlman-Anderson Intelligence Test scores of fourth-grade boys from father-absent and father-present homes. Carter and Walsh (1980) also examined the effects of father absence on elementary school children and found no significant differences in grade point averages between father-absent students and their father-present counterparts. In a study of 281 college freshmen, Black, Hale, and Stevenson (1981) compared Scholastic Aptitude Test scores of students from father-absent and father-present homes and reported no significant differences for the two family groups.

The results of some studies, however, indicate that father absence has positive effects on children's cognitive performance. For example, Jones (1975) compared scores on the Henmon-Nelson Test of Mental Ability for 60 college students from father-absent homes with those of a comparison group from father-present homes and found that the students from father-absent homes scored significantly higher ($\rho < .05$). In a study of 180 middle-class children in grades six and seven, Collins (1981) reported that father-absent children had significantly higher ($\rho < .01$) school grades than father-present children. Herzog (1974) also examined the effects of father absence on school-age children and found that boys from father-absent families scored significantly higher ($\rho < .05$) than boys from father-present families on the Vernon Graded Arithmetic Test.

Thus, the findings of father-absence studies vary in irregularity across context, classes of subjects, and countless other factors. Integrative reviews of the father-absence studies give further evidence of the contradictory nature of the research. In a review of research prior to 1969, Herzog and Sudia (1973) concluded that contradictory findings made impossible an evaluation of the effects of father absence and cautioned against over-zealous claims for negative behavioral and psychological effects. However, following review of 54 studies, Shinn (1978) reported, "the evidence shows that rearing in father-absent families. . . is often associated with poor performance on cognitive tests" (p. 321). Conversely, in a more recent review, Hetherington et al. (1981) determined that clear associations between one-parent status and depressed standardized cognitive test scores could not be established.

Purpose of Study

The plethora of contradictory research findings has created the need for a systematic analysis of the literature in order to determine what is known and not known about the effects of father absence. Differences in age, gender, race, and socioeconomic status of the child, differences in reason for, length and onset of the absence, and differences in study methodologies make necessary the consideration of a variety of factors in the evaluation of father-absence effects. Furthermore, systematic attempts to investigate the nature and covariates of absence, subject, and study characteristics are lacking.

The present study builds on the work of prior reviewers (Herzog & Sudia, 1973; Shinn, 1978; Hetherington et al., 1981) and examines the effects of father absence on children's cognitive performance through meta-analytic procedures. Although interpretation of conflicting study findings is problematic, differences in results may be more readily interpreted through consideration of multiple study or sample variables. Therefore, the purpose of the study had six parts: (1) to identify and collect all studies investigating the effects of father absence on children's cognitive performance; (2) to determine the magnitude of effects of father absence in each study; (3) to compare the effects of father absence on different measures of cognitive performance; (4) to compare the effects of different types of father absence; (5) to relate the size of effect to the characteristics of the absence, the characteristics of the study, and the characteristics of the study subjects; and (6) to determine which characteristics of the absence, study, and study subjects predict the reported father-absence effects, to what extent and in which combination.

Method

The present study used the quantitative integrative review methodology of meta-analysis (Glass, 1976, 1977; Hedges & Olkin, 1983; Cohen, 1977; Pillemar & Light, 1980; Rosenthal, 1984). The meta-analytic approach involved transforming the findings of individual studies to a common metric, coding various characteristics of the studies, and then using conventional

statistical procedures to determine whether there was an overall effect, subsample effects, and relations among characteristics of the studies and the study findings.

Sample of Studies

In order to draw conclusions about the entire realm of research investigating the effects of father absence on children's cognitive performance, an attempt was made to access all relevant studies reported in the published and unpublished literature between 1925 and 1986. Toward this end, father-absence studies were sought in four places: computer document retrieval and abstracting resources, printed abstracts and indexes, previous reviews of the father-absence literature, and the bibliographies of studies once found. Because sample bias may occur if only published studies are examined (Rosenthal, 1979), an effort was made to locate a number of unpublished studies by accessing conference proceedings and by soliciting responses from investigators active in father-absence research.

Data collection yielded 167 studies investigating the effects of father absence on children's cognitive performance. For final inclusion in the meta-analysis, each study had to meet the following criteria:

1. The study focused directly on father absence or included such a focus as part of a broader inquiry. Studies of "parent absence," "one-parent families," and "broken homes" were included since the missing parent was usually the father.

2. The study investigated the effects of father absence on cognitive performance as assessed by scores on intelligence, scholastic aptitude, or academic achievement tests or school grades.

3. The study employed group comparisons or correlations for both father-absent and father-present samples.

4. The study reported descriptive statistics or used statistical analyses which yielded data that could be converted to effect sizes or effect size estimates.

Preliminary examination of the 167 accessed studies revealed that 20 of the studies were duplicate reports. Of the remaining 147 studies, 10 studies did not meet the inclusion criteria and were excluded from the meta-analysis because the studies provided Scholastic Aptitude Test quantitative-verbal difference scores only (Bernstein, 1976; Funkenstein, 1963; Gregory, 1965), employed group comparisons or correlations for father-absent samples only (Hillenbrand, 1970; Ryker, Rogers, & Beaujard, 1971; Savage & Newhouse, 1978; Wallerstein & Kelly, 1980), or yielded insufficient data to compute effect sizes or effect size estimates (Carter & Walsh, 1980; Miner, 1968; Nye, 1957).

The final sample of 137 separate research investigations included in the meta-analysis comprised approximately 93% of the entire set of studies investigating the effects of father absence on children's cognitive performance. This sample represents 9,955,118 father-absent and father-present subjects from preschool

to college age and from a variety of racial and socioeconomic status groups in Australia, Canada, England, and the United States. The studies included in the meta-analysis are listed in the Appendix.

Variables Coded from Each Study

The characteristics of the studies were classified and coded so that study findings could be analyzed and compared by study properties. The characteristics of the studies were roughly classified as either substantive features (i.e., characteristics specific to the problem studied) or methodological features (i.e., general characteristics of the study). The 14 coded study characteristics, definitions, and classifications appear in Table 1.

Computations and Analysis of Effect Sizes

Glass (1976, 1981) suggests that when most of the studies of a meta-analysis are investigations with a control group, as in the father-absence research, the standard measure of findings should be a standard score difference expressed as an effect size. Therefore, in the present meta-analysis, when descriptive statistics were available, effect sizes were computed by dividing the mean difference of the experimental (father-absent) and control (father-present) groups by the standard deviation of the control group. When means and standard deviations were not reported effect sizes were recovered from parametric test statistics via conversion formulas outlined by Glass, McGaw, and Smith (1981) and Rosenthal (1984).

Table 1
Coded Study Characteristics

Substantive Features

1. Reason for absence: employment/military service, divorce/separation/desertion, death, combined, not reported.
2. Outcome type: measure of cognitive performance used in the study; intelligence test, scholastic aptitude test, academic achievement test, school grades.
3. Age at onset: age of the child at onset of the absence; early (0-6 years), middle (7-12 years), late (over 12 years), combined, or not reported.
4. Length of absence: less than two years, two years or more, combined, or not reported.
5. Gender: gender of the study subjects; male, female, combined male and female sample, not reported.
6. Race: race of study subjects; black, white, other, or not reported.
7. Socioeconomic status: socioeconomic status of the study subjects; high, middle, low, combined, or not reported.
8. Age: age of subjects at time of study; preschool, elementary, junior high, high school, college, or combined.

Methodological Features

1. Study date: before 1965, 1965-1969, 1970-1974, 1975-1979, 1980-1986.
2. Study source: journal, book, thesis/dissertation, or unpublished.
3. Sample: 25 or less, 26-50, 51-100, 101-200, 201-500, 501-1000, 1001-5000, over 5000.
4. Geographic distribution of study sample: neighborhood/school, city, school district, college/university, state, or nation.
5. Matched/controlled factors: number of matched or controlled variables across father-absent and father-present samples including gender, socioeconomic status, race, IQ, age, and grade in school; 0-6.
6. Father-absence factors: number of father-absence factors defined in the study including reason, length, age of child at onset; 0-3.

The 137 studies included in the meta-analysis yielded 273 effect sizes with some studies yielding effects for more than one type of outcome for different types of father absence and different study subjects. The number of effect sizes per study ranged from 1 to 8: 57 studies yielded one effect size, 58 studies yielded 2 effect sizes, 8 studies yielded 3 effect sizes, 7 studies yielded 4 effect sizes, 4 studies yielded 7 effect sizes, and 3 studies yielded 8 effect sizes. The studies included in the meta-analysis, within-study effect sizes, the average effect size for each study, and the statistics used to compute each effect size are listed in the Appendix.

One decision that had to be made when computing effect sizes and the overall average effect size involved determining the number of hypothesis-relevant effect sizes obtained from each study. If multiple results are derived from the same study, the data are rendered non-independent and reduce the reliability of the subsequent statistical analyses. In addition, the results of the studies are not represented equally in the overall average effect size because a study contributes to the overall average effect size in relation to the number of effect sizes contained within it. Because many important questions could only be addressed at the "within study" level of analysis, a shifting unit of analysis was used in the calculation of effect sizes and the overall average effect size. Specifically, each effect size at the variable level was coded as if it were an independent event. However, when the

overall average effect size was computed, within-study effect sizes were averaged first so that each study contributed equally to the general findings.

Following the calculation of effect sizes for each study and the computation of the overall average effect size, average effect sizes were computed for each variable category. For example, the effect sizes within each variable category of reason for absence (i.e., employed/military service, death, divorce/desertion/ separation, combined, and not reported) were averaged across all studies. This procedure was repeated for every category in each coded substantive and methodological study characteristic. Tests of significant differences in mean effect sizes between categories of each variable (i.e., study characteristic) were then performed using analysis of variance. Thus, the entire analysis of variance procedure consisted of 14 one-way analyses of variance, that is, one analysis of variance for each coded study characteristic. The final statistical procedure of the meta-analysis consisted of multiple regression using the effect sizes found in the separate studies as criterion variables and the characteristics of the studies as the predictor variables.

Results

Data from All Studies

Aggregation of the findings from the 137 studies included in the meta-analysis yielded an overall average effect size of -.26 reflecting a .26 standard deviation superiority of the father-

present group over the father-absent group. Thus, the average father-present subject had higher intelligence test scores, scholastic aptitude test scores, achievement test scores, or school grades than approximately 59% of the father-absent subjects. The standard deviation of the effect sizes is .37 with a skewness of -.69.

The 273 effect size measures were classified into four categories descriptive of the outcome measures of cognitive performance (i.e., intelligence, aptitude, and achievement test scores and school grades). Effect sizes for the four outcome measures are presented in Table 2. A total of 109 effect sizes averaged -.30 of a standard deviation for father absence on the academic achievement test outcome measure. Thus, the average father-present child scored higher than approximately 60% of the father-absent children on academic achievement tests. The mean effect size for the school grades outcome category was nearly the same, -.29 of a standard deviation. Nineteen effect sizes averaged -.21 of a standard deviation for the aptitude test outcome category. The mean effect size for the intelligence test outcome was the smallest of the four outcome measure categories, -.19 of a standard deviation.

Table 3 presents the average effect sizes for five categories of father absence (i.e., employment/military service, divorce/desertion/separation, death, combined, and not reported). Seventy-four effect-size measures of father absence because of divorce/

Table 2

Father-Absence Effects on Four Types of Outcome Measure

Outcome measure	No. of effect sizes	Mean effect size	Standard error of mean effect size
Intelligence test	76	-.19	.04
Academic aptitude test	19	-.21	.09
Academic achievement test	109	-.30	.03
School grades	69	-.29	.05
Entire population	273	-.26	.02

ANOVA Table

Source of variation	df	MS	*F*	ρ
Between	3	.188	1.36	.256
Within	269	.138		

separation/desertion averaged -.31 of a standard deviation. Thus the average father-present child scored higher on measures of cognitive performance than approximately 62% of the children who experienced father absence because of marital disruption. The mean effect size for the combined reason category was comparable, -.29 of a standard deviation. Thirty-four studies averaged -.21 standard deviation for the father absence due to death category. The mean effect size for employment/military service was the smallest of the five reason for absence categories, .08 of a standard deviation.

Subsample Effects

Table 4 presents comparisons of mean effect sizes across levels of study characteristics. Mean effect sizes were found to differ significantly as a function of only 5 of the 14 coded and analyzed study characteristics:

1. Age of child at onset of absence. Reported negative effects were significantly greater ($\rho < .05$) for children experiencing onset of father absence between 7 and 12 years of age. However, over half (161 of 273) of the effect sizes were derived from studies that did not report age at onset data. Furthermore, no studies included subjects that experienced onset at over 12 years of age and only two studies included subjects that experienced father-absence onset between 7 and 12 years of age.

2. Age of subjects at time of study. Reported negative father-absence effects were significantly greater ($\rho < .05$) for

Table 3

Father-Absence Effects Compared by Reason for Absence

Reason for absence	No. of effect sizes	Mean effect size	Standard error of mean effect size
Employment/military service	4	.08	.16
Death	34	-.21	.05
Divorce/separation/desertion	74	-.31	.04
Combined	77	-.29	.05
Not reported	84	-.22	.04
Entire population	273	-.26	.02

ANOVA Table

Source of variation	df	MS	*F*	p
Between	4	.248	1.81	.127
Within	268	.137		

elementary and junior high students than for preschool, high school, or college-age subjects. A total of 99 effect sizes averaged -.34 of a standard deviation for elementary school children indicating that the average father-present child scored higher than approximately 63% of the father-absent children on measures of cognitive performance. The mean effect size for the junior high school age category averaged across 43 effect sizes was comparable, -.33 of a standard deviation.

3. Sample *n*. Reported father-absence effects were significantly greater ($\rho < .05$) when study samples included 26-50 subjects. In addition, the mean effect size for studies with samples less than 25 subjects was significantly smaller ($\rho < .05$) than the mean effect sizes for studies with samples ranging from 26 to 500 subjects.

4. Geographic distribution. Reported father-absence effects were significantly greater ($\rho < .05$) when study samples were drawn from one school or neighborhood. The mean effect size for studies with a sample distribution of neighborhood/school was the largest, -.43 of a standard deviation. The mean effect sizes then progressively decreased in magnitude as the study sample geographic distribution increased, except for category 6 (nation) where the effect size increased to -.22 of a standard deviation.

5. Matched/controlled factors. Reported negative father-absence effects were significantly greater ($\rho < .05$) in studies that controlled or matched 5-6 factors than in studies that matched

Table 4

Father-Absence Effects Compared by Study Characteristics

Study characteristic	No. of effect sizes	Mean effect size	*F*	*p*
Onset age				
Early (0-6 years)	37	-.27		
Middle (7-12 years)	2	-1.02		
Late (over 12 years)	0	--		
Combined	73	-.26		
Not reported	161	-.25		
Entire population	273	-.26	2.91	.035
Length of absence				
Less than 2 years	3	-.39		
2 years or more	37	-.33		
Combined	22	-.39		
Not reported	211	-.23		
Entire population	273	-.26	1.47	.212
Gender				
Male	90	-.25		
Female	58	-.19		
Combined	125	-.30		
Entire population	273	-.26	1.64	.195
Socioeconomic status				
High	0	--		
Middle	46	-.25		
Low	46	-.26		
Combined	121	-.22		
Not reported	60	-.34		
Entire population	273	-.26	1.42	.238
Race				
Black	65	-.25		
White	65	-.25		
Other	1	-.39		
Combined	42	-.23		
Not reported	100	-.28		
Entire population	273	-.26	.14	.967

(table continued)

Table 4 (continued)

Father-Absence Effects Compared by Study Characteristics

Study characteristic	No. of effect sizes	Mean effect size	*F*	*p*
Age at time of study				
Preschool	27	-.27		
Elementary	99	-.34		
Junior high	43	-.33		
High school	55	-.15		
College	27	-.13		
Combined	22	-.14		
Entire population	273	-.26	3.52	.004
Study date				
Before 1965	27	-.35		
1965-1969	51	-.32		
1970-1974	53	-.23		
1975-1979	61	-.21		
1980-1986	81	-.24		
Entire population	273	-.26	1.11	.351
Study source				
Journal	114	-.27		
Book	28	-.27		
Thesis/dissertation	99	-.24		
Unpublished	32	-.27		
Entire population	273	-.26	.13	.944
Sample size				
25 or less	5	.13		
26-50	13	-.52		
51-100	49	-.35		
101-200	49	-.29		
201-500	76	-.24		
501-1000	18	-.19		
1001-5000	34	-.18		
Over 5000	29	-.17		
Entire population	273	-.26	2.85	.007

(table continued)

Table 4 (continued)

Father-Absence Effects Compared by Study Characteristics

Study characteristic	No. of effect sizes	Mean effect size	*F*	*p*
Geographic distribution				
School/neighborhood	37	-.43		
City	89	-.29		
School district	59	-.21		
College/university	22	-.17		
State	17	-.12		
Nation	49	-.22		
Entire population	273	-.26	2.78	.018
Matched/controlled factors				
0	27	-.23		
1	40	-.31		
2	63	-.18		
3	86	-.25		
4	44	-.25		
5	10	-.58		
6	3	-.72		
Entire population	273	-.26	2.71	.014
Defined father-absence factors				
0	67	-.26		
1	93	-.19		
2	40	-.35		
3	73	-.29		
Entire population	273	-.26	1.99	.116

or controlled 0-4 factors. The mean effect sizes for studies that matched or controlled 5 or 6 factors (i.e., gender, socioeconomic status, race, IQ, age, or grade in school) were the largest, -.58 and -.72 of a standard deviation respectively. The mean effect sizes for the other categories of number of matched/controlled factors were smaller, ranging from -.31 to -.18 of a standard deviation.

Failure to find a greater number of subsample effects among the 14 study characteristics investigated in the present meta-analysis may be due, in part, to the lack of information contained in the father-absence studies. For example, 86 of the 137 analyzed studies did not report the reason for the father absence, 104 of the studies did not report length of absence, and 92 of the studies did not report the age of the child at onset of the absence. Thus, the majority of studies contained inadequate information on which to base conclusions regarding possible subsample effects of three important father-absence variables--reason for, length, and age of child at onset of the absence.

Relation Among Study Characteristics and Findings

Fourteen characteristics of each study were correlated with the effect sizes the studies produced (Table 5). The correlations are generally low, although five reached statistical significance--age at onset of the father absence, age at time of study, sample size, sample geographic distribution, and number of matched/controlled factors. The largest correlation is with sample size

showing a significant association ($\rho < .01$) between sample size and study effect sizes. As the size of the study sample increased, the effect size produced by the study decreased. Study effect sizes also significantly diminished ($\rho < .05$) as the geographic distribution increased and the number of matched/controlled factors in the study decreased. The final significant correlation ($\rho < .01$) shows an association between the age of the study subject and study effect sizes. As the age of the study subjects increased from elementary to college age, the study effect sizes increased.

Prediction of Reported Father-Absence Effects

The results of the multiple regression analysis appear in Table 6. Seven variables contributed significantly ($\rho < .05$) to the prediction of effect sizes--geographic distribution (neighborhood/school), onset age (middle 7-12 years old), sample size (25 or less), age at time of study (high school), number of matched/controlled factors (five), number of defined father-absence factors (two), and age at time of study (college). The proportion of the variance in the study effect sizes attributable to the composite set of seven significant variables is approximately .405. Thus, only about 16% of the variance in study effect sizes is accounted for by the composite set of predictors (i.e., study characteristics).

Again, failure to account for more of the variance in the reported father-absence effects may be due to the lack of information contained in the analyzed father-absence studies. In

Table 5

Correlations of Study Characteristics with Effect Size

Study characteristic	Correlation with effect size η	r
Reason for absence	.16	--
Outcome measure	.12	--
Onset age	.18*	.04
Length of absence	.15	.11
Gender of study subjects	.11	--
Socioeconomic status of subjects	.12	.04
Race of study subjects	.05	--
Age at time of study	.25**	.20**
Date of study	.13	.10
Source of study	.04	--
Sample size	.26**	.21**
Geographic distribution	.22*	.16**
Matched/controlled factors	.24**	-.12*
Father-absence factors	.15	-.07

*$p < .05$
**$p < .01$

Table 6

Multiple Regression Analysis

Independent variables	*B*	*R*	R^2
Geographic distribution (neighborhood/school)	-.249	.405	.164
Onset age: middle (7-12 years old)	-.775		
Sample size: 25 or less	.450		
Age at time of study: high school	.150		
Matched/controlled factors : 5	-.475		
Father-absence factors defined: 2	-.148		
Age at time of study: college	.144		
Additive constant	-.245		

Corrected Multiple *R*	.377
Corrected *R* square	.142
σ_e	.322

many cases, studies did not report data about the coded and analyzed methodological and substantive study characteristics. Furthermore, the body of father-absence research provided no relevant data regarding the following potentially important variables: availability of the father and/or father substitutes following the separation, family interaction patterns before and after the father absence, standards of maternal care, family configuration, mobility, and availability of societal and familial support systems. These variables may add significantly to the prediction of father-absence effects and should be included in future studies investigating the effects of father absence on children.

Discussion

Effect size interpretation must take place within a context of decision and comparative value involving the difficult problem of making practical judgments about practical significance. In the present meta-analysis, the father-absent and father-present samples were separated by approximately one-quarter of a standard deviation ($\Delta = -.26$). In terms of score differences on the Standard-Binet Intelligence Scale, the average father-present child scored less than 4 points higher than the average father-absent child, assuming a population standard deviation of 16. However, in terms of achievement test score differences, where the population standard deviation may range from 1.0 to 2.5 years depending on the grade level of the test, the average father-present child could score

from 3-7 months higher than the average father-absent child. Thus, while the reported effects of father absence are negative, these effects have uncertain practical significance. Furthermore, methodological problems including inadequate reporting and failure to insure comparable father-absent and father-present samples preclude the formation of firm conclusions regarding subsample effects, relations among study characteristics and findings, and prediction of father-absence effects.

Methodological Problems

The present meta-analytic review indicates that investigations of the effects of father absence have been fragmentary and their results often conflicting and inconclusive. One reason for this, no doubt, lies in the difficulty of carrying out father-absence research. There is the problem of obtaining a large representative sample of father-absent children together with an equally representative sample of father-present children with whom they can be compared. Furthermore, only by collecting a great deal of data about father-absent families, about aspects of the child's development, and about the nature of the absence can a complete picture of the effects of father absence on cognitive performance be compiled.

In addition to the difficulties inherent in the father-absence research, methodological problems have contributed to the fragmentary and conflicting results. Some of these methodological problems have been discussed in qualitative reviews of the father-

absence literature (Herzog & Sudia, 1973; Shinn, 1978). Primary among the methodological problems in the father-absence research is the definition of father absence. Generalizations about the effects of father absence often assume a dichotomy between "one-parent" and "two-parent" or "father-absent" and "father-present" with no regard for the reason, length, and onset of the absence, the degree of father availability following separation, or the existence of father substitutes.

Another methodological problem found in the father-absence research is lack of consideration or control of variables that may have possible moderating effects on the relationship between father absence and cognitive performance. No single factor is the cause of variance in intellectual or academic performance, rather a combination and interaction of factors yields the outcome. Focus on only one or two variables leads to overlooking factors that could make significant contributions to the results. In addition, failure to control for moderating variables may result in samples differing on so many pertinent variables that comparisons of father-absent and father-present groups yield no interpretable results.

A third methodological problem found in the father-absence research is failure to recognize and make explicit the underlying assumptions within the research so that the results can be evaluated in terms of those foundations. One characteristic present in many studies of the effects of father absence is the designation of the father-absent family as an "incomplete family" and the accompanying assumption that such a family is abnormal or less

conducive to the child's optimum cognitive performance than the two-parent family. Thus, the prevailing tendency has been to focus on the problems and weaknesses of the father-absent family without inquiry into the nature of or even the existence of positive effects.

This brief consideration of the methodological problems present in the father-absence research indicates the need for a re-evaluation of hypothesis formation and research procedures. Such a task necessitates a paradigmatic shift in the father-absence research including redefinition of the perspective and context of the research problem and clarification of techniques for statistical analysis of the data.

Implications for Further Research

Perspective in father-absence research involves the picturing of the component parts of the study in such a way as to show them as they refer to the total development of the child or the changing circumstances of the family. A crucial element in the investigation of the effects of father absence on cognitive performance is the need to study the performance of the child over a long period of time. Low scores on one measure of cognitive performance noted in a one-time study may represent a developmental delay and may not be an indicator of negative effects of father absence per se. In addition, there is the need to study the father absence/presence factor over time. Father absence/presence is not a static circumstance but a dynamic, ongoing process. The period

of stress which may precede the absence and the loss of the father/husband together with subsequent changes in the family's economic and social circumstances and the relationships between its remaining members may have effects on the child's cognitive performance that can only be traced over time.

The context of the study of father absence involves definition of the characteristics of the absence including the cause, length, age of the child, and availability of the father and father substitutes following the absence. Family interaction characteristics and standards of maternal care before and after the absence also contribute to the context of father-absence research. In addition, setting the context necessitates consideration of the characteristics of the populations studied including gender, race, socioeconomic status, mobility, age, and family configuration. Social norms and the availability of societal and familial support systems also contribute to the whole environment surrounding the investigation of the effects of father absence.

The complexity of the study of father-absence effects points to the need for a reformulation of research questions about father absence and its possible effects on children. Previous studies have been asking: How and how much are children harmed by growing up in a father-absent home? Studies that would attempt to treat father absence as a cluster of variables that may affect cognitive performance would define the entire context of the father absence and would be exemplary of a positive paradigmatic shift. Thus, the

question in the study of the effects of father absence would become: Under what circumstances and in what ways does father absence from the home combine with other factors to produce identifiable effects relevant to the child's cognitive performance? In line with this model, additional rewarding questions concerning father absence would explore both negative and positive elements. Such inquiries would attempt to discover what elements interact to produce what effects in both father-absent and father-present homes.

Much of the research reviewed in the present meta-analysis has been relatively simplistic with a limited range of methods used to analyze the data. Emphasis has been placed on the presentation of frequency counts or percentages (e.g., Webb, 1970; National Association of Elementary School Principals, 1980) that lead to overstatement of the importance of small differences between father-absent and father-present subjects. Some studies using correlation statistics (e.g., Pringle et al., 1966; Mueller, 1975; O'Shields, 1980) have been limited to the investigation of the relationship between only two variables--father absence and cognitive performance. Many studies (e.g., Cortes & Fleming, 1968; Chapman, 1977; Smilansky,1982) have used one-way tests of significant mean differences that do not provide information about the magnitude of the father-absence effects and do not explore interactions between variables.

Review of the research suggests that if statistical analyses are to be complete, the magnitude of the differences between father-absent and father-present subjects needs to be assessed.

Thus, an implication that arises from the present meta-analysis is that journals encourage authors to provide reports of effect size or sufficient information (means and standard deviations) so that effect sizes can be readily calculated. Unless measurement of effect size is addressed, the importance of the findings are to some extent masked (Cohen, 1977). Provision of effect sizes in study reports will give the reader the option of deciding whether a statistically significant difference is large enough to merit further attention, either in practice or in research.

Conclusions

Even though researchers who have studied the effects of father absence on children have presented an extensive body of data, methodological problems including inadequate reporting and failure to insure comparable father-absent and father-present samples offer ambiguous evidence on which to base generalizations. The findings of the present meta-analysis suggest that father absence does have negative effects on children's cognitive performance, although the magnitude and practical significance of the effects cannot be clearly established. As more studies with adequate methodological techniques and well-controlled research procedures are completed, it will be possible to meta-analyze those studies in hopes of reaching more definitive conclusions regarding the magnitude and significance of reported father-absence effects, subsample effects, and relations between study characteristics and findings.

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Studies Included in the Meta-Analysis

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Allen (1970)	$\bar{X}$, s $\bar{X}$, s	IQ: -.42 Achievement: +.03	-.20
Altus (1958)	$\bar{X}$, s	None	+.07
Annunziata (1981)	F F	Male: -.81 Female: -.28	-.56
Atkinson & Ogston (1974)	"No significant difference"	None	0.00
Averitt (1981)	$\bar{X}$, s $\bar{X}$, s	Male: -.52 Female: -.26	-.39
Bachman (1970)	$\bar{X}$, s $\bar{X}$, s	Death: -.14 Divorce: -.44	-.29
Bain et al. (1983)	$\bar{X}$, s $\bar{X}$, s	Male: -.65 Female: +.15	-.25
Bales (1979)	r r r r	Black male: -.06 Black female: -.02 White male: -.10 White female: -.08	-.06
Barton (1981)	t t	Male: -.59 Female: -.11	-.35
Belcher (1961)	$\bar{X}$, s $\bar{X}$, s	Achievement: -1.44 GPA: -2.13	-1.76
Belz & Geary	$\bar{X}$, s $\bar{X}$, s	Male: -.13 Female: -.19	-.16
Bergman (1981)	$\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s	Male IQ: -.24 Female IQ: -.17 Male achievement: -.38 Female achievement: -.25	-.26
Berry & Poncini (1981)	p	None	-.99
Birnbaum (1966)	$\bar{X}$, s $\bar{X}$, s	Achievement: -.10 GPA: -.14	-.12
Black (1981)	$\bar{X}$, s $\bar{X}$, s	Male: -.14 Female: -.03	-.08

Studies Included in the Meta-Analysis (continued)

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Blanchard & Biller (1971)	t t	Achievement: -1.07 GPA: -.77	-.92
Bowman (1981)	F	None	-.23
Boyd (1984)	$\bar{X}$, s $\bar{X}$, s	Achievement: -.29 GPA: -.23	-.26
Broman et al. (1975)	$\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s	Black male: -.25 Black female: -.09 White male: -.37 White female: -.07	-.20
Buceta (1982)	$\bar{X}$, s $\bar{X}$, s	IQ: -.35 GPA: -1.55	-.95
Buchinal (1964)	F	None	0.00
Campbell (1932)	$\bar{X}$, s $\bar{X}$, s	IQ: -.01 GPA: -.25	-.13
Carlsmith (1964)	$\bar{X}$, s	None	-.14
Chapman (1977)	$\bar{X}$, s $\bar{X}$, s	Male: -1.10 Female: +.46	-.32
Clarke (1961)	$\bar{X}$, s	None	+.28
Coleman et al. (1966)	r r r	Black: -.14 White: -.20 Other: -.39	-.26
Collins (1981)	t	None	+.61
Collins (1969)	$\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s	Male IQ: -.14 Female IQ: -.43 Male achievement: +.31 Female achievement: -.19 Male GPA: -.12 Female GPA: -.29	-.14
Condit (1960)	t t	Death: -.07 Divorce: -.14	-.10

Studies Included in the Meta-Analysis (continued)

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Conyers (1977)	p	None	-.34
Corsica (1980)	$\bar{X}$, s $\bar{X}$, s	IQ: -.44 GPA: -.69	-.56
Cortes & Fleming (1968)	$\bar{X}$, s t t	IQ: -.10 Achievement: -.25 GPA: -.30	-.22
Cox (1975)	F	None	-.27
Crescimbeni (1964)	t t	Death: -1.13 Divorce: -.91	-1.02
Crossman & Adams (1980)	$\bar{X}$, s	None	-.54
Curtis & Nemzek (1938)	$\bar{X}$, s $\bar{X}$, s	Death: -.41 Divorce: -1.09	-.75
Derrick (1977)	$\bar{X}$, s $\bar{X}$, s	IQ: -.17 Aptitude: -.03	-.10
Deutsch (1960)	r	None	-.95
Deutsch & Brown (1964)	$\bar{X}$, s	None	-.46
Douglas et al. (1968)	$\bar{X}$, s $\bar{X}$, s	IQ: -.10 Achievement: -.26	-.18
Edgar & Headlam (1982)	p p	Achievement: -.29 GPA: -.40	-.34
Eiduson et al. (1977)	$\bar{X}$, s	None	-.24
Engemoen (1966)	$\bar{X}$, s $\bar{X}$, s	IQ: -.29 Achievement: -.06	-.18
Epps (1969)	F F	Male: -.06 Female: -.53	-.30
Essen (1979)	$\bar{X}$, s	None	-.38

Studies Included in the Meta-Analysis (continued)

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Evans & Neel (1980)	F	None	-.06
Farley (1977)	$\bar{X}$, s	Aptitude: -.36	-.34
	$\bar{X}$, s	Achievement: -.34	
	$\bar{X}$, s	GPA: -.32	
Feldman & Feldman (1975)	$\bar{X}$, s	IQ: -.03	-.11
	F	GPA: -.19	
Ferri (1976)	$\bar{X}$, s	Male death: -.17	-.21
	$\bar{X}$, s	Female death: -.01	
	$\bar{X}$, s	Male divorce: -.33	
	$\bar{X}$, s	Female divorce: -.33	
Fink (1980)	$\bar{X}$, s	IQ: +.02	+.16
	$\bar{X}$, s	Achievement: +.30	
Fowler & Richards (1979)	$\bar{X}$, s	Male: -.49	-.69
	$\bar{X}$, s	Female: -.90	
Gale (1974)	χ^2	None	-.17
Gatlin & Brown (1975)	t	IQ: -.09	-.29
	t	Achievement: -.39	
	t	GPA: -.39	
Gerard & Miller (1976)	$\bar{X}$, s	None	-.35
Gerasch (1983)	$\bar{X}$, s	None	-.77
Ginsburg & Russell (1981)	F	None	-.30
Goldstein (1983)	$\bar{X}$, s	Black death IQ: -.22	-.21
	$\bar{X}$, s	White death IQ: -.20	
	$\bar{X}$, s	Black divorce IQ: +.07	
	$\bar{X}$, s	White divorce IQ: -.30	
	$\bar{X}$, s	Black death achievement: -.35	
	$\bar{X}$, s	White death achievement: -.20	
	$\bar{X}$, s	Black divorce achievement: +.04	
	$\bar{X}$, s	White divorce achievement: -.37	
Gray (1980)	$\bar{X}$, s	None	-.81

Studies Included in the Meta-Analysis (continued)

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Greenberg & Davidson (1971)	F	None	-.33
Guidubaldi & Perry (1984)	r r	Achievement: -.87 GPA: -.82	-.84
Guidubaldi et al. (1984)	F F F	IQ: -.18 Achievement: -.23 GPA: -.22	-.21
Hammond (1979)	t t	Male: -.27 Female: -.17	-.22
Herzog (1974)	χ^2 χ^2	IQ: +.42 Achievement: +.30	+.36
Hess et al. (1968)	$\bar{X}$, s	None	-.18
Hess et al. (1969)	$\bar{X}$, s $\bar{X}$, s p	IQ: -.16 Achievement: -.12 GPA: -.46	-.25
Hetherington et al. (1978)	$\bar{X}$, s	None	-.44
Hornstein (1980)	r r	IQ: -.41 Achievement: -.40	-.40
Hunt & Hunt (1975)	r r	Black: +.16 White: -.92	-.38
Hunt & Hunt (1977)	r r	Black: 0.00 White: +1.12	+.56
Ilardi (1966)	$\bar{X}$, s $\bar{X}$, s	Male: -.24 Female: -.58	-.41
Jaffe (1965)	$\bar{X}$, s $\bar{X}$, s	IQ: -.75 Achievement: -.94	-.84
Jantz & Sciara (1975)	F	None	-.24
Jenkins (1958)	$\bar{X}$, s p	IQ: -.44 GPA: -.31	-.38
Jones (1975)	t	None	+.22

Studies Included in the Meta-Analysis (continued)

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Keller (1968)	χ^2	None	-.17
Kelly et al. (1965)	F	None	-.08
Kitano (1963)	"no significant difference"	None	0.00
Kohn (1977)	r	None	-.19
Kohn & Rosman (1974)	r	None	-.20
Landy et al. (1969)	p	None	-.86
Lee (1974)	$\bar{X}$, s	None	+.07
Lessing et al. (1970)	$\bar{X}$, s $\bar{X}$, s	Male: -.20 Female: +.01	-.09
Lloyd (1972)	χ^2 χ^2 χ^2 χ^2	Black male: -.16 Black female: -.12 White male: -.15 White female: -.02	-.11
McNeal (1975)	F F F F F F F F	Male death achievement: +.18 Female death achievement: +.23 Male divorce achievement: -.04 Female divorce achievement: -.32 Male death GPA: -.27 Female death GPA: -.22 Male divorce GPA: -.43 Female divorce GPA: -.45	-.33
Maxwell (1961)	χ^2	None	-.24
Milne et al. (1983)	$\bar{X}$, s $\bar{X}$, s	Black: -.27 White: -.18	-.22
Moffitt (1981)	$\bar{X}$, s	None	+.27
Mofidi (1980)	$\bar{X}$, s $\bar{X}$, s	Male: -.30 Female: -1.23	-.76

Studies Included in the Meta-Analysis (continued)

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Mueller (1975)	r	None	-.47
Myers (1983)	$\bar{X}$, s $\bar{X}$, s	Black: -.10 White: -.08	-.09
Nelsen & Maccoby (1966)	$\bar{X}$, s $\bar{X}$, s	Male: -.08 Female: -.18	-.13
Nielson (1971)	$\bar{X}$, s	None	-.06
O'Shields (1980)	r	None	-.31
Oshman (1975)	$\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s	Male military service: -.16 Female military service: +.55 Male death: -.69 Female death: +.03 Male divorce: -.05 Female divorce: -.27	-.10
Pedersen et al. (1976)	$\bar{X}$, s $\bar{X}$, s	Male: -.75 Female: -.19	-.47
Perry & Pfuhl (1963)	χ^2	None	-.12
Peterson et al. (1966)	r r	Black: -.97 White: -.64	-.80
Pleas (1976)	F F	Male: -.38 Female: -.14	-.12
Pringle et al. (1966)	χ^2 χ^2	Male: -.11 Female: -.10	-.10
Rees & Palmer (1970)	$\bar{X}$, s $\bar{X}$, s	Male: -.24 Female: -.12	-.18
Risen (1939)	χ^2	None	0.00
Rosenthal & Hansen (1980)	t t	Death: -.11 Divorce: -.14	-.12

(continued)

Studies Included in the Meta-Analysis (continued)

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Santrock (1972)	$\bar{X}$, s	Male death IQ: +.04	-.34
	$\bar{X}$, s	Female death IQ: +.12	
	$\bar{X}$, s	Male divorce IQ: -.19	
	$\bar{X}$, s	Female divorce IQ: -.06	
	t	Male death achievement: -.80	
	t	Female death achievement: -.44	
	t	Male divorce achievement: -.52	
	t	Female divorce achievement: -.83	
Santrock & Wohlford (1970)	F	Achievement: -.32	-.32
	F	GPA: -.32	
Saslow (1975)	$\bar{X}$, s	IQ: +1.01	+.75
	t	GPA: +.50	
Sciara (1975)	F	None	-.26
Sciara (1977)	p	None	-.31
Sciara & Jantz (1974)	F	None	-.28
Scott (1974)	$\bar{X}$, s	None	+.05
Seraydarian (1982)	$\bar{X}$, s	Death IQ: -.14	-.10
	$\bar{X}$, s	Divorce IQ: -.05	
	$\bar{X}$, s	Death achievement: +.14	
	$\bar{X}$, s	Divorce achievement: -.08	
	$\bar{X}$, s	Death GPA: -.18	
	$\bar{X}$, s	Divorce GPA: -.31	
Shelton (1968)	$\bar{X}$, s	Male IQ: -.58	-.72
	$\bar{X}$, s	Female IQ: -.58	
	$\bar{X}$, s	Male achievement: -.87	
	$\bar{X}$, s	Female achievement: -.30	
	$\bar{X}$, s	Male GPA: -1.46	
	$\bar{X}$, s	Female GPA: -.55	
Shilling & Lynch (1985)	$\bar{X}$, s	None	+.07
Simmons (1981)	t	Aptitude: -.36	-.24
	t	Achievement: -.18	
	t	GPA: -.17	

Studies Included in the Meta-Analysis (continued)

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Smidchens & Thompson (1978)	$\bar{X}$, s $\bar{X}$, s	Male: -.42 Female: -.39	-.40
Smilansky (1982)	$\bar{X}$, s $\bar{X}$, s $\bar{X}$, s	IQ: -.37 Achievement: -.17 GPA: -.28	-.27
Solari (1976)	$\bar{X}$, s $\bar{X}$, s	Male: -.18 Female: -.22	-.20
Solomon et al. (1972)	p	None	-.19
Southworth (1984)	$\bar{X}$, s	None	-.54
Stetler (1959)	$\bar{X}$, s $\bar{X}$, s	Black: -.37 White: -.27	-.32
Sutherland (1930)	$\bar{X}$, s	None	-.29
Sutton-Smith et al. (1968)	t t	Male: -.38 Female: -.07	-.22
Svanum et al. (1982)	$\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s	Black IQ: -.01 White IQ: -.26 Black achievement: -.21 White achievement: -.33	-.20
Thomas (1969)	$\bar{X}$, s $\bar{X}$, s	IQ: +.10 GPA: -.15	-.02
Thompson (1978)	$\bar{X}$, s	None	-.31
Thompson & Smidchens (1979)	$\bar{X}$, s $\bar{X}$, s	Male: -.44 Female: -.47	-.45
Veasey (1974)	$\bar{X}$, s	None	+.56
Voza (1984)	$\bar{X}$, s	None	-.86
Vroegh (1972)	$\bar{X}$, s	None	-.07

Studies Included in the Meta-Analysis (continued)

Study	Statistics Used	Within-Study $\Delta/\hat{\Delta}$	Study $\Delta/\hat{\Delta}$
Wadsworth et al. (1985)	$\bar{X}$, s	None	-.36
Waldron (1983)	F F	Achievement: -.41 GPA: 0.00	-.20
Wasserman (1972)	$\bar{X}$, s	None	-.24
Webb (1970)	r r	Achievement: -.16 GPA: 0.00	-.08
Weitz & Wilkinson (1957)	F F	Death: -.16 Divorce: -.24	-.20
Willerman et al. (1970)	$\bar{X}$, s $\bar{X}$, s $\bar{X}$, s $\bar{X}$, s	Black male: -1.90 Black female: -1.17 White male: -.33 White female: -.19	-.90
Wilson (1969)	$\bar{X}$, s $\bar{X}$, s	IQ: 0.00 Achievement: -.08	-.04
Woo (1981)	F	None	-.13
Zold (1975)	$\bar{X}$, s $\bar{X}$, s	Male: +.26 Female: -.06	-.10

Note. Δ = effect size computed from experimental and control group means and standard deviation of control group, $\hat{\Delta}$ = estimated effect size computed from F, t, r, ρ, or χ^2.